Math 240(10.3) Worksheet 9 Name & Box Number:

1. Find the arc length of the curve given.

$r(t) =< 2\sin t, 5t, 2\cos t >, -10 \le t \le 10$

2. Reparametrize the curve with respect to arc length measured from the point where t=0 in the direction of increasing t.

$r(t) = 2t\mathrm{i} + (1-3t)\mathrm{j} + (5+4t)\mathrm{k}$

3. Find the curvature of $r(t) =< t, t^2, t^3 >$ at (1,1,1).